REMARKS

This Amendment is filed in response to the final Office Action dated January 30, 2009. For the following reasons this amendment should be entered, the application allowed, and the case passed to issue. No new matter is introduced by this amendment and this amendment clearly places the application in condition for allowance. The amendments to claims 1 and 5 are supported by Figs. 9-11 and the accompanying portions of the specification (page 6, line 22 to page 8, line 18; and page 9, lines 22 to 33 of the specification), which clearly teach that passages in current extraction sections 4a, 4b, and 4c do not supply the fuel cell stack with oxygen and hydrogen, or fluid.

Claims 1-3, 5-11, and 19-26 are pending in this application. Claims 1-3. 5-11, and 19-26 were rejected. Claims 1 and 5 are amended in this response. Claims 4, 12-18 and 27 were previously cancelled.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-3, 5-11 and 19-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson (US 6,124,051) in view of St. Pierre (WO 01/48846). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention as claimed and the cited prior art.

An aspect of the invention, per claim 1, is a fuel cell assembly comprising a fuel cell stack formed by laminating a plurality of cells and plus and minus current extraction sections. The current extraction sections extracting current generated by the fuel cell stack and sandwiching the fuel cell stack with respect to the direction of lamination. Each current extraction section comprising a current extraction plate which is fixed to an end cell positioned on an end of the fuel cell stack so as to extract the generated current, and an end plate for

uniformly binding the cells of the fuel cell stack. A passage allowing flow of oxygen gas and hydrogen gas during startup of the fuel cell stack at a temperature below freezing, is provided for at least one of the current extraction plate and the end plate. A catalyst for combusting the gas is applied to a wall face of the passage. The passage passes only the current extraction sections and does not supply the fuel cell stack with the oxygen gas and hydrogen gas.

Another aspect of the invention, per claim 5, is a fuel cell system comprising a fuel cell assembly comprising a fuel cell stack formed by laminating a plurality of cells and plus and minus current extraction sections. The current extraction sections extract current generated by the fuel cell stack and sandwich the fuel cell stack with respect to the direction of lamination. Each current extraction section comprises a current extraction plate which is fixed to an end cell positioned on an end of the fuel cell stack so as to extract the generated current, and an end plate for uniformly binding the cells of the fuel cell stack. A passage allowing flow of a fluid during startup of the fuel cell stack at a temperature below freezing, is provided for at least one of the current extraction plate and the end plate. The passage passes only the current extraction sections and does not supply the fuel cell stack with the fluid. A control valve is provided which is open to supply the fluid to the passage during startup of the fuel cell stack and which is closed to stop supplying the fluid to the passage under normal conditions of the fuel cell stack after the startup. A heating device heats the passage for the fluid.

Johnson and St. Pierre, whether taken in combination, or taken alone, do not suggest the claimed fuel cell assembly and fuel cell system because Johnson and St. Pierre do not suggest a passage allowing flow of oxygen gas and hydrogen gas during startup of the fuel cell stack wherein the passage passes only the current extraction sections and does not supply the fuel cell stack with the oxygen gas and hydrogen gas, as required by claim 1; and a passage allowing flow

of a fluid during startup of the fuel cell stack at a temperature below freezing, provided for at least one of the current extraction plate and the end plate, wherein the passage passes only the current extraction section and does not supply the fuel cell stack with the fluid, as required by claim 5. The required passages effectively heat the end cells.

If Johnson and St. Pierre are combined, and Applicants do not believe such a combination would have been obvious, the combination would fail to disclose a passage that passes only the current extraction sections and does not supply the fuel cell stack with the oxygen gas and hydrogen gas, as required by claim 1; and a passage that passes only the current extraction sections and does not supply the fuel cell stack with the fluid; as required by claim 5. Such a passage can heat the end cell effectively.

St. Pierre discloses that a catalyst is disposed within a portion of the coolant passage, and does not suggest that a catalyst is also disposed within a portion of the reactant passage, though WO01/48846 shows the combustion of fuel and oxidant within reactant pathways within the stack. If the catalyst of the coolant passage of St. Pierre is adapted to the coolant passages 9 of Johnson patent, the coolant passage 9 of Johnson patent would be provided with a catalyst and would pass through the inside of the fuel cell stack to supply the fuel cell stack with the oxygen gas and hydrogen gas, unlike claim 1.

The present claims are further distinguishable over the cited references because St. Pierre discloses the combustion of fuel and oxidant by a catalyst within coolant pathways within the stack, thereby increasing the temperature of the whole stack on start-up or maintaining a desired operating temperature during operation. The coolant passage 9 of Johnson also passes the inside of the fuel cell stack to cool the whole stack.

Therefore, the combination of Johnson and St. Pierre provides a passage that passes the inside of the fuel cell stack and supplies the fuel cell stack with the oxygen gas and hydrogen gas. If a passage having a catalyst passes through the inside of the fuel cell stack, the combustion of fuel and oxidant occurs within the stack and fuel and oxidant are consumed within the stack, which would heat the stack and not preferentially heat the end cell.

Claims 24-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention as claimed and the cited prior art.

An aspect of the invention, per claim 24, is a fuel cell assembly comprising a fuel cell stack formed by laminating a plurality of cells and plus and minus current extraction sections. The current extraction sections extract current generated by the fuel cell stack and sandwich the fuel cell stack with respect to the direction of lamination. Each current extraction section comprises a current extraction plate which is fixed to an end cell positioned on an end of the fuel cell stack so as to extract the generated current, and an end plate for uniformly binding the cells of the fuel cell stack. An enclosed cavity confines gas therein formed in at least one of the current extraction sections. The gas is sealed in the enclosed cavity at a reduced pressure. The end plate is formed from a material which has a lower coefficient of thermal conductivity than a material for forming the current extraction plate.

Johnson does not suggest the claimed the fuel cell assembly because Johnson does not suggest a fuel cell assembly comprising an enclosed cavity for confining gas therein formed in at least one of the current extraction sections, the gas being sealed in the enclosed cavity at reduced pressure; as required by claim 24.

Johnson discloses that a coolant (not gas) circulates to cool the bus plate 14 and the cells 15. Johnson does not disclose or suggest the coolant is sealed in the enclosed cavity at a reduced pressure. One skilled in the art would not come up with the idea of allowing gas to be sealed in the enclosed cavity at a reduced pressure in view of the teachings of Johnson.

By the gas being sealed in the enclosed cavity at a reduced pressure, the transmission of heat from the fuel cell stack to the current extraction sections, is largely reduced, as reduced pressure usually results in a low transmission of heat. In this manner, heat from the end cell can be prevented from being drawn away by the current extraction sections during cold startup at temperatures below freezing.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Johnson or St. Pierre to modify the fuel cell assembly and fuel cell system of Johnson to include a fuel cell assembly comprising a passage allowing flow of oxygen gas or hydrogen gas during startup of the fuel cell stack at a temperature below freezing, provided for at least one of the current extraction plate and the end plate, wherein a catalyst for combusting the gas is applied to a wall face of the passage, wherein the passage passes only the current extraction sections and does not supply the fuel cell stack with the oxygen gas and hydrogen gas, as required by claim 1; the passage passes only the current extraction section and does not supply the fuel cell stack with the fluid, as required by claim 5; and an enclosed cavity for confining gas therein formed in at least one of the current

extraction sections, the gas being sealed in the enclosed cavity at reduced pressure, as required by claim 24, nor does common sense dictate such modifications. The Examiner has not provided any evidence that there would be any obvious benefit in making such modifications of Johnson. *See KSR Int'l Co. v. Teleflex, Inc.*, 500 U.S. ____ (No. 04-1350, April 30, 2007) at 20.

The only teaching of the claimed fuel cell assemblies and fuel cell system is found in Applicant's disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The dependent claims are allowable for at least the same reasons as the respective independent claims from which they depend and further distinguish the claimed methods.

In light of the above Remarks and Amendments, this amendment should be entered, the application allowed, and the case passed to issue. If there are any questions regarding these remarks or the application in general, a telephone call to the undersigned would be appreciated to expedite prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Bernard P. Codd

Bernard P. Codd
Registration No. 46,429

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BPC:MWE
Facsimile: 202.756.8087
Date: April 30, 2009

Please recognize our Customer No. 20277 as our correspondence address.